

# Luffa

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**Specific Name and Introduction:** There are two main species of cultivated luffa (loofah): angled luffa or Chinese okra (*Luffa acutangula*), a green, immature fruit with longitudinal ridges consumed like Summer squash; and smooth luffa or sponge gourd (*Luffa aegyptiaca* Mill). It is sometimes eaten as a vegetable, but mature fruit are mainly used to make sponges for cosmetics and cleaning (Ellington and Wehner, 1996). Both are members of the Cucurbitaceae family.

**Quality Characteristics and Criteria:** Edible fruit are harvested at an immature stage. If angled luffa are left to mature, there is blossom-end enlargement, stem-end shrinkage and bitter flavor development (Zong *et al.*, 1993). Quality loss is most often associated with loss of green color.

**Grades, Sizes and Packaging:** There are no U.S. Grades for luffa.

**Horticultural Maturity Indices:** They are harvested immature and selected based on size.

**Optimum Storage Conditions:** Angled luffa can be stored for up to 2 weeks at 10 to 12 °C (50 to 54 °F) with 90 to 95% RH (Zong *et al.*, 1992, 1993; Cantwell, 1997).

**Controlled Atmosphere (CA) Considerations:** There is no published information.

**Retail Outlet Display Considerations:** Top icing is not acceptable due to their chilling sensitivity. Water sprays are acceptable.

**Chilling Sensitivity:** Fruit are sensitive to chilling at < 10 °C (50 °F) (Zong *et al.*, 1993). Symptoms include skin discoloration, watery lesions under the skin, and enhanced decay.

**Ethylene Production and Sensitivity:** Angled luffa produce very low levels of ethylene at < 0.1  $\mu\text{L kg}^{-1} \text{ h}^{-1}$  at 20 °C (68 °F). However, it is sensitive to ethylene during postharvest handling, which results in a loss of green color and reduced quality (Zong *et al.*, 1993).

## Respiration Rates:

Temperature	mg CO <sub>2</sub> kg <sup>-1</sup> h <sup>-1</sup>
0 °C	14
5 °C	27
10 °C	36
15 °C	63
20 °C	79

To get mL kg<sup>-1</sup> h<sup>-1</sup>, divide the mg kg<sup>-1</sup> h<sup>-1</sup> rate by 2.0 at 0 °C (32 °F), 1.9 at 10 °C (50 °F), and 1.8 at 20 °C (68 °F). To calculate heat production, multiply mg kg<sup>-1</sup> h<sup>-1</sup> by 220 to get BTU per ton per day or by 61 to get kcal per metric ton per day. Data are from Zong *et al.* (1992, 1993).

**Physiological Disorders:** Luffas should be handled with care; damage to longitudinal ribs leads to water loss and decay. Fruit are susceptible to dehydration and toughening of the peel.

**Postharvest Pathology:** No specific information.

**Quarantine Issues:** None known.

**Suitability as Fresh-cut Product:** No current potential.

**Special Considerations:** Care must be taken with selection of the correct immature stage; damage to the ribs must be carefully controlled as it leads to water loss and decay.

**References:**

- Cantwell, M. 1997. Properties and recommended conditions for storage of fresh fruits and vegetables at [http://postharvest.ucdavis.edu/produce/storage/sci\\_dl](http://postharvest.ucdavis.edu/produce/storage/sci_dl).
- Ellington, T.L. and T.C. Wehner. 1996. Postharvest treatments for producing sponges from immature fruits of luffa gourds. Cucurbit Genet. Coop. Rpt. 19:85-86.
- Zong, R., M.I. Cantwell and L.L. Morris. 1993. Postharvest handling of Asian specialty vegetables under study. Calif. Agric. 47(2):27-29.
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